# 8.9 Agriculture and Soils

## 8.9.1 Site Setting

The Henrietta Peaker Project (HPP) consists of a 91.4-megawatt (MW) (net), natural-gas-fired, simple-cycle power plant located approximately 10 miles southwest of Lemoore, California, on a seven-acre portion of a 20-acre parcel owned by GWF Energy LLC. The HPP will interconnect to the existing adjacent Pacific Gas and Electric Company (PG&E) Henrietta Substation through a new 550-foot 70-kilovolt (kV) transmission line supported on two new transmission poles. Other linear facilities include an approximately 16.5-foot water interconnection pipeline (from the site property boundary) and a 2.2-mile Southern California Gas Company (SoCalGas) natural gas interconnection pipeline. Additionally, approximately five acres will be used for temporary construction laydown and parking.

The HPP site lies on a flat area of alluvial fan deposits associated with the Kings River. The elevation of the site is approximately 225 feet above mean sea level. Before agricultural and urban development in the area, the alluvial fan deposits were dissected and cut by shallow, meandering sloughs and creeks. Many of the sloughs have been filled and leveled and are now farmed. The topographic gradient slopes gently to the east-southeast, and local drainage is directed towards Kings River. Rainfall is less than 10 inches per year; groundwater is approximately 80 to 100 feet below ground surface (Mills, 2000).

The site is currently being used for agricultural production. Cotton is cultivated on 90 to 95 percent of the site. The site has been used for the cultivation of cotton for at least 30 years. Prior to that time, the site was not developed or utilized. Properties to the east, west, and south of the site are also used for the cultivation of cotton (Harding, 2001). The northeast corner of the property extends into a wheat field.

## 8.9.2 Soil Types Affected and Potential Impacts

The HPP will affect the soil at the locations of the support structures for the transmission route and along the natural gas pipeline route. Soil resource information was obtained from a soil survey of Kings County published by the U.S. Department of Agriculture Soil Conservation Service (Arroues and Anderson, 1986). The soil types surrounding the HPP

site are shown on Figure 8.9-1. Soil types are identified by project component in Table 8.9-1. The characteristics of the soil types in the immediate vicinity of the HPP and its components are provided in Table 8.9-2. Potential impacts to these soil types are discussed in the "Comments" column of Table 8.9-2.

#### 8.9.2.1 Henrietta Peaker Plant Site and Construction Laydown Area

Lethent clay loam covers the entire site (Arroues and Anderson, 1986) (see Figure 8.9-1). This soil type occurs on alluvial fans and basin rims and is typically used for irrigated crops and urban development. The soil type has a high concentration of salts and is alkaline. Lethent clay loam is not prime farmland, even when it is irrigated (Arroues and Anderson, 1986).

The Storie Index provides a numerical expression of the suitability of a soil for intensive farming, based on the characteristics of the soil profile and the surface (Arroues and Anderson, 1986). From the numerical rating obtained from this index, soils are placed in one of six grades, ranging from Grade 1 (soil that is best-suited for intensive farming) to Grade 6 (soil that is unsuitable for farming). Based on the soil survey, Lethent clay loam has a Storie Index of 41, which corresponds to Grade 3. Grade 3 soils are only fairly well-suited to farming and are limited in their agricultural potential (City of Hanford Planning Department, 1988). In this case, the salt and alkali content of the soil limits its agricultural potential.

In addition, the Soil Conservation Service developed categorical definitions of important farmlands for land inventory purposes. Important farmlands provide the best opportunity for agricultural production. Land designated as "Prime Farmland" or "Farmland of Statewide Importance" has a good combination of physical and chemical features for the production of agricultural crops. Figure 8.9-2 shows the various classifications of agricultural farmlands in the immediate vicinity of the HPP site. The HPP site and the construction laydown area are located on potential Farmland of Statewide Importance, as defined by the Soil Conservation Service.

The Williamson Act is a state land use policy enacted to preserve open space and agricultural land. The act discourages premature urbanization and prevents landowners from

being forced to develop their property. The Williamson Act is implemented by creating a voluntary contract with property owners that restricts land use for 10 years, with an automatic annual renewal. The proposed HPP site is located on land that is under Williamson Act contract and is currently being used for agricultural production, except for portions of the parcel that are used for roads. The construction of the HPP will permanently remove seven acres of the 20-acre parcel from agricultural production. Therefore, Kings County recommended cancellation of the Williamson Act contract for the parcel.

During construction at the HPP site, an area of approximately seven acres of surface soils will be excavated. The physical and biological characteristics of the native soil in this area will be altered by this excavation. The Lethent clay loam and some underlying alluvium will be compacted as fill to support the generators and other structures. The compaction will increase the density of the soil and reduce its porosity and already low permeability. Also, in the area of the building, the saline-alkali condition of the soil could contribute to the corrosion of steel and concrete. Thus, steel and concrete should be treated before being placed in contact with the soil. The soil also has the potential for shrinking and swelling. Buildings and roads should be designed to offset the effects of shrinking and swelling. During the development of the construction laydown area and before compacting and grading at the HPP site, the excavated soil will have an increased susceptibility to erosion. The soil loss potential from wind or water erosion was not calculated, because the construction activity will employ mitigation and sedimentation/erosion controls. Because excavation of the soil can expose material susceptible to wind erosion, revegetation or the use of a synthetic mat covering may be necessary following disturbance.

#### 8.9.2.3 Proposed Natural Gas Pipeline Routes

The proposed natural gas pipeline will begin at the southwest corner of the HPP site. The pipeline will run south along the eastern edge of 25th Avenue to the Avenal Cutoff, then continue south adjacent to an unimproved farm access road to the SoCalGas Line 800, approximately one mile south of the intersection of 25th Avenue and the Avenal Cutoff. The proposed pipeline will be within the Kings County rights-of-way along 25th Avenue to the intersection of 25th Avenue with the Avenal Cutoff. The HPP has obtained an easement for that

portion of the gas line extending south of the Avenal Cutoff to the interconnection point on the SoCalGas Line 800.

Approximately one mile of the proposed 2.2-mile natural gas pipeline route will traverse parcels that are designated as Farmland of Statewide Importance and under Williamson Act contract (Kings County Planning Department, 2001). However, the impact of the proposed natural gas pipeline will be minimal, because the pipeline follows the Kings County right-of-way associated with 25th Avenue and the unpaved farm road. Therefore, no land will be converted from agricultural production due to the natural gas pipeline, other than potential temporary conversion during construction.

The proposed pipeline will cross only one soil type: Lethent clay loam (Arroues and Anderson, 1986) (see Figure 8.9-1). See the preceding discussion of the proposed transmission route for information regarding this soil type. The construction of the proposed natural gas pipeline will disturb approximately seven acres of surface soils.

#### 8.9.2.4 Summary of Effects

The HPP site is designated as Farmland of Statewide Importance and located on lands under Williamson Act contracts. The Williamson Act contract for the HPP site has been the subject of a Tentative Cancellation under a Kings County Board of Supervisors resolution (see Section 8.4, Land Use, and Appendix B). Although lands within one-quarter mile of the proposed transmission route and within one mile of the HPP site are currently used for agricultural production, the HPP will only permanently impact the seven acres used for the proposed plant site. The site is bordered by a paved county road to the west and by an unpaved farm road to the north. Across the unpaved farm road is the Henrietta Substation, operated by PG&E. Existing transmission corridors connecting with the Henrietta Substation cross the proposed HPP site and surround the proposed plant site itself. Therefore, the proposed plant site is isolated from the remainder of the adjoining agricultural land. The loss of 20 acres of isolated agricultural land with soil of limited agricultural potential is not considered a significant impact.

The proposed natural gas pipeline crosses land designated as Farmland of Statewide Importance and under Williamson Act contract. However, the impact of the natural

gas pipeline will be minimal, because the pipeline runs beneath the Kings County right-of-way associated with 25th Avenue and an unpaved farm road. Therefore, the impacts to agricultural land from the construction of the proposed natural gas pipeline are expected to be minimal.

The aboveground transmission line is within existing utility corridors and will not impact agricultural use. There are no impacts associated with a 16.5-foot water line, sized to serve only the HPP.

Approximately 12 acres of soil at the HPP site will be disturbed during construction. The soil cover will be removed and compacted for improved support of the cogeneration equipment. Approximately seven acres of soil will be disturbed during construction of the natural gas pipeline route. As described above, the natural gas pipeline will run adjacent to 25th Avenue, along a Kings County right-of-way. Impacts from construction of the proposed pipeline to soil resources are anticipated to be minimal.

One potential impact of the HPP on soil resources is increased erosion by water or wind during construction. However, the mitigation measures described below will reduce the impact to less than significant.

### 8.9.3 Growth-Inducing Impacts

The HPP site is in unincorporated Kings County adjacent to an existing electrical substation. Because the HPP is next to a substation and will not be providing energy to a specific entity, growth from the additional energy that the HPP will provide is not expected to occur in the project vicinity.

### 8.9.4 Cumulative Impacts

There are currently no new applications for development in the vicinity of the HPP site. Given the minimal impacts of the HPP, as mitigated, and the protections afforded by the controls and programs under the Porter-Cologne Act, the Williamson Act, and the resource conservation elements of the Kings County General Plan, no significant negative cumulative impacts are anticipated.

## 8.9.5 Mitigation Measures

### 8.9.5.1 General Mitigation Measures

The following mitigation measures will be implemented to minimize the impacts of the HPP on agriculture and soil resources.

The construction of the HPP will result in the permanent loss of seven acres currently in crop production. It will also result in the temporary loss of five acres within the 20-acre parcel. While the Williamson Act contract for the 20-acre parcel has been cancelled, GWF does not plan to fence the 13 acres not used for the project site. Construction of the proposed natural gas pipeline will occur within the Kings County right-of-way associated with 25th Avenue to the Avenal Cutoff and will not impact agricultural lands. There are no county right-of-ways associated with 25th Avenue south of the Avenal Cutoff; however, construction impacts to agricultural land in this area are expected to be minimal. If agricultural lands are affected, they will be returned to agricultural use following construction.

After grading and compacting, the soil excavated from the HPP site will be revegetated or covered with a synthetic mat, as necessary, to reduce the potential for wind and water erosion. The HPP site will be graded and will have drainage controls. Best management practices (BMPs) will be implemented to control erosion during construction activities. These measures will be described in the stormwater pollution prevention plan (SWPPP) required by the General Storm Water Permit for Construction.

### 8.9.5.2 Specific Mitigation Measures

The following specific measures are proposed to reduce construction impacts to minimal levels:

- Prior to construction, a SWPPP will be prepared that describes BMPs to minimize soil erosion. BMPs will be implemented during and after construction. Surface soil protection may include the use of mulches, synthetic netting material, riprap, and the compacting of native soil.
- All construction activities will be conducted in accordance with California's General Industrial Storm Water Permit for Construction Sites, including the

erosion control measures in the SWPPP and BMPs to reduce erosion and the transport of increased suspended sediment from construction areas.

- In the construction area, soil will be graded and compacted and not left in irregular piles that are more susceptible to water and wind erosion. The areas will be reseeded where natural vegetation has been distressed or removed by construction activity.

### 8.9.6 Laws, Ordinances, Regulations, and Standards

The laws, ordinances, regulations, and standards (LORS) that apply to agricultural and soil resources at the HPP site are presented in Table 8.9-3. The LORS for federal, state, and local authorities are presented in this section; no industry LORS apply.

**Federal Water Pollution Control Act of 1972 and the Clean Water Act of 1977 (including 1987 Amendments):** These laws establish requirements for discharges from any activity that will affect the beneficial uses of receiving waters. Since no wastewater discharges or stormwater will leave the HPP site, the HPP will not violate these statutes. The HPP will file a SWPPP that identifies BMPs to be used during construction to avoid offsite consequences.

**U.S. Department of Agriculture, Natural Resources Conservation Service, National Engineering Handbook, Sections 2 and 3 (1983):** This guidance provides standards for soil conservation during planning, design, and construction activities.

The HPP will conform with applicable standards in the *National Engineering Handbook* to ensure that the project does not cause soil loss though accelerated erosion. The proposed mitigation measures outline steps to be taken during grading and construction to limit erosion caused by the soil disturbance.

**California Public Resources Code, Section 25523(a); California Code of Regulations (CCR), Sections 1752, 1752.5, 2300–2309, and Chapter 2, Subchapter 5, Article 1, Appendix B, Part (i):** These regulations stipulate the environmental review and siting procedures to be followed in the development of power generation projects larger than 50

megawatts. The California Energy Commission (CEC) is the administering agency for this authority.

The HPP will comply with this authority, as all information regarding environmental impacts on soil and agriculture will be submitted to the CEC and all mitigation measures identified in the final certification will be implemented.

**California Environmental Quality Act, California Public Resources Code, Section 21000 et seq.; Guidelines for Implementation of the California Environmental Quality Act (CEQA) of 1970, 14 CCR, Sections 15000–15387, Appendix G:** CEQA specifies that: "A project will normally have a significant effect on the environment if it will …(q) Cause substantial flooding, erosion, or siltation; …(y) Convert prime agricultural land to nonagricultural use or impair the agricultural productivity of prime agricultural lands."

The proposed mitigation measures identified in Section 8.9.3 outline steps to be implemented during grading and construction to ensure that the HPP will not cause substantial flooding, erosion, or siltation. The HPP will permanently remove seven acres of land from agricultural production. In addition, any area disturbed by the construction of the HPP and the proposed natural gas pipeline will be returned to agricultural use after construction is complete.

**California Porter-Cologne Water Quality Control Act of 1972; California Water Code, Sections 13260–13269; 23 CCR Chapter 9:** The Water Code requires protection of water quality by appropriate design and implementation of erosion and sediment controls. Land disturbance that results in the discharge of "waste" soil into surface waters may require the filing of a waste discharge report (see Water Code Section 13260a).

The HPP will not discharge waste soils during grading and construction. Implementation of mitigation measures during grading and construction will protect all surface water courses.

**Williamson Act:** The HPP site is located on land formerly under Williamson Act contract. The Williamson Act contract for the HPP site has been the subject of a Tentative Cancellation by the Kings County Board of Supervisors. A portion of the proposed natural gas pipeline will cross under land subject to Williamson Act contract. The remainder of the

proposed pipeline is within a Kings County right-of-way. Land within the right-of-way is not currently being used for production of agricultural crops and will not be used for the production of crops in the near future.

**Resource Conservation Element of the Kings County General Plan (1993):** The resource conservation element of the Kings County General Plan sets forth policies that address the protection of soil and prime agricultural farmland.

Seven acres of agricultural farmland will be permanently taken out of production for the HPP. It is anticipated that the HPP will not significantly reduce the quality of surrounding agricultural resources or significantly reduce access to soil or agricultural resources.

### 8.9.7 Proposed Conditions of Certifications

Proposed conditions of certification are contained in Appendix K. These conditions are proposed in order to ensure compliance with applicable LORS and/or to reduce potentially significant impacts to less-than-significant levels.

### 8.9.8 Involved Agencies and Agency Contacts

| Agency | Contact/Title | Telephone |
|---|---|---|
| California Department of Conservation,<br>Division of Land Resources Protection<br>801 K Street, MS 13-71<br>Sacramento, CA 95814-3528 | Emily Tesche | (916) 323-0868 |

### 8.9.9 Required Permits

No permits related to agriculture and soils are required.

### 8.9.10 References

Arroues, Kerry D., and Carl H. Anderson, Jr., 1986. *Soil Survey of Kings County, California*. U.S. Department of Agriculture, Soil Conservation Service.

Harding Engineering and Environmental Services, 2001. *Phase I Environmental Site Assessment; GWF Power Systems – Henrietta Peaker 25th Avenue, Henrietta, California*. June.

Kings County Planning Department, 1993 [2001]. Kings County General Plan. Resource Conservation Element. Updated January 2001.

Kings County Public Works Department, 2001. Telephone communication between Jerry Reese and Tony Gomes, Kings County Public Works Department, and J. Adams, URS Corporation.

Mills, Don, 2000. Personal communication from Don Mills, Kings County Water District, to J. Low, URS/Radian International, February 8.

Natural Resources Conservation Service, 1983. *National Engineering Handbook*. U.S. Government Printing Office.

# TABLES

**Table 8.9-1**
**Soil Types Identified by Project Component for the HPP Plant Site**

| Project Component | Approximate Area Disturbed | Map Symbol[a] | Soil Type[a] |
|---|---|---|---|
| Henrietta Peaker Project site and construction laydown area | 12 acres | 139 | Lethent clay loam |
| Proposed natural gas pipeline route | 7 acres | 139 | Lethent clay loam |

[a] Map symbols and soil types were obtained from *Soil Survey of Kings County, California* (Arroues and Anderson, 1986).

**Table 8.9-2**
**Characteristics of Soil Types in the Immediate Vicinity of the HPP**

| Map Unit Name and Description[a] | Slopes Percent[a] | Soil Profile | Erosion Susceptibility | | Comments |
|---|---|---|---|---|---|
| | | | Water | Wind | |
| 139 – Lethent clay loam: Very deep, saline-alkali, moderately well drained. Formed on alluvium derived dominantly from sedimentary rock. | 0–1 | Pale brown clay loam: 0 to 6 inches; Light brownish gray clay: 6 to 24 inches; Brownish gray clay loam: 24 to 31 inches; light yellowish brown sandy loam: 31 to 60 inches. | Slight | Low | Permeability: very slow. Excavations for roads or building site pads can expose material that may be susceptible to wind and/or water erosion. Disturbed areas of construction sites should be revegetated or covered with synthetic matting where needed to reduce the risk of erosion. |

[a] Map symbols, soil types, and descriptions were obtained from *Soil Survey of Kings County, California* (Arroues and Anderson, 1986).
NA = not applicable

**Table 8.9-3**
**Laws, Ordinances, Regulations, and Standards for Agricultural and Soil Resources**

| Jurisdiction | Authority | Administering Agency | AFC Conformance Section |
|---|---|---|---|
| Federal | Federal Water Pollution Control Act of 1972; Clean Water Act of 1977 (including 1987 amendments) | RWQCB – Central Valley Region under State Water Resources Control Board | Sections 8.9.3 and 8.9.4 |
| | Soil Conservation Service (1983), *National Engineering Handbook*, Sections 2 and 3 | Natural Resources Conservation Service | Sections 8.9.3 and 8.9.4 |
| State | California Public Resources Code § 25523(a); CCR §§ 1752, 1752.5, 2300–2309, and Chapter 2, Subchapter 5, Article 1, Appendix B, Part (i) | CEC | Section 8.9.4 |
| | Guidelines for Implementation of CEQA, Appendix G; 14 CCR §§ 15000 – 15387 | CEC | Sections 8.9.2 through 8.9.4 |
| | Porter-Cologne Water Quality Control Act of 1972; Cal. Water Code §§ 13260–13269; 23 CCR Chapter 9 | CEC and the Central Valley RWQCB under the State Water Resources Control Board | Section 8.9.3 |
| | Williamson Act | California Dept. of Conservation, Office of Land Conservation | Section 8.9.2 and 8.9.3 |
| Local | Kings County General Plan – Resource Conservation Element, 1993 | Kings County Planning Department | Sections 8.9.2 and 8.9.3 |

CCR = California Code of Regulations
CEC = California Energy Commission
CEQA = California Environmental Quality Act
RWQCB = Regional Water Quality Control Board

# FIGURES